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ABSTRACT

The construct of motivation toward school is vaguely defined. The Junior Index of Motivation (JIM Scale) is one of few instruments claiming validity in measuring motivation toward school among junior and semior high students. This study discusses the shortcomings of the JIM scale, and compares item and total score characteristics and correlates with I. Q. scores, absences and grades. On the basis of these data, current usage of the JIM Scale should proceed with caution. (Author)

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ITEM AND TOTAL SCORE CHARACTERISTICS AND CORRELATES OF THE JIM SCALE

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The construct of motivation toward school is a recent, vaguely defined concept in educational research, with few instruments claiming adequate measurement among junior and senior high school students. The Junior Index of Motivation (JIM Scale) claims some validity for a global measure of motivation toward school learning, but data to justify its claims are incomplete (Buros, 1970, P. 63). The manual lacks several "essential" criteria recommended by the APA-AERA-NCME guidelines for psychological and educational instruments (1966). The present paper reports on an attempt to examine the item and total score correlates

AND CHARACTERISTICS OF THE JIM SCALE AS A SINGLE-SCORE GLOBAL MEASURE FOR "ASSESSING ADOLESCENTS' MOTIVATION TOWARD SCHOOL" (FRYMIER, 1970A, P. 56).

THE PRESENT PAPER ATTEMPTS TO FOCUS ON TWO PRIMARY ISSUES IN THE USE OF THE JIM SCALE WITH ADOLESCENTS: THE SOUNDNESS OF THE THEORY UPON WHICH THE JIM SCALE IS IMPLICITLY BASED, AND THE UTILITY OF THE INSTRUMENT. THE FIRST ISSUE ARISES THROUGH ATTEMPTS TO DEVELOP A MEASURE THAT INCORPORATES PERSONALITY, VALUES, ATTITUDES AND CURIOSITY INTO A SINGLE SCORE. NO ATTEMPT WAS MADE IN THE DEVELOPMENT OF THE JIM SCALE TO ISOLATE, IDENTIFY OR MEASURE COMPONENTS OF MOTIVATION TOWARD SCHOOL, DESPITE EVIDENCE THAT DIVERSE FACTORS MAY HAVE UNEQUAL INFLUENCE OVER INDIVIDUAL ADOLESCENTS' PERFORMANCE IN AND ATTITUDE TOWARD SCHOOL (ROSENBERG, 1957, 1965; COOPERSMITH, 1967). THE AUTHOR OF THE JIM SCALE ASSUMED THAT THE INSTRUMENT "WOULD ULTIMATELY HAVE UTILITY AND VALIDITY AS A WHOLE .... THE TEST BEING DEVELOPED WOULD BE USEFUL ONLY AS A TOTAL SCALE" (FRYMIER, 1970A, P. 58).

THIS LEADS TO THE SECOND ISSUE IN THIS STUDY: THE UTILITY OF THE JIM SCALE. THE "MANUAL" FOR THE INSTRUMENT IS A FEBRUARY, 1970, JOURNAL ARTICLE (FRYMIER, 1970A) SUMMARIZING NINE STUDIES OF THE JIM SCALE'S DISCRIMINATING POWER, PRIMARILY BETWEEN TWO DICHOTOMOUS GROUPS OF STUDENTS: STUDENTS TEACHERS IDENTIFY AS "HIGHLY MOTIVATED" TO DO SCHOOL WORK, AND STUDENTS TEACHERS IDENTIFY AS "POORLY MOTIVATED" TO DO SCHOOL WORK. NOTHING HAS BEEN REPORTED OF ATTEMPTS TO VALIDATE THE JIM SCALE FOR USE WITH INDIVIDUAL STUDENTS IN A CONTINUOUS RANGE OF MOTIVATION TOWARD SCHOOL;

DATA FROM THE MIDDLE TWO QUARTERS OF THE THEORETICAL CONTINUUM OF MOTIVATION TOWARD SCHOOL HAVE BEEN EXCLUDED IN PUBLISHED STUDIES. THIS PAPER ATTEMPTS A PARTIAL REMEDY OF THAT OVERSIGHT, REPORTS ITEM AND TOTAL SCORE CORRELATES AND PATTERNS IN TERMS OF FOUR MEASURES OF STUDENT APTITUDE AND BEHAVIOR IN SCHOOL, AND COMPARES TWO METHODS OF SCORING THE JIM SCALE.

METHODS

FIVE VARIABLES WERE SELECTED FOR THE STUDY: GRADE POINT AVERAGES (GPA), ABSENCES, TOTAL READING SCORES FROM THE IOWA TESTS OF EDUCATIONAL DEVELOPMENT (ITED), AND STEA (SHORT TEST OF EDUCATIONAL ABILITY) SCORES FROM THE ITED. THE FIRST TWO WERE SELECTED AS BEHAVIORAL CRITERIA, AND THE LATTER TWO AS APTITUDE MEASURES. THE FIFTH VARIABLE WAS THE JIM SCALE.

THE TOTAL SAMPLE OF 296 HIGH SCHOOL FRESHMEN WAS PARTITIONED INTO FOUR QUARTERS, OR SUBSAMPLES, AS DETERMINED BY THE THREE JIM SCALE TOTAL SCORE QUARTILES IN THE TOTAL SAMPLE. THE FOUR QUARTERS WERE DESIGNATED AS THE LOWEST QUARTER (SUBJECTS WITH JIM SCALE SCORES BELOW THE FIRST QUARTILE), THE LOW MIDDLE QUARTER (SUBJECTS WITH JIM SCALE SCORES ABOVE THE FIRST QUARTILE, BUT BELOW THE MEDIAN), THE HIGH MIDDLE QUARTER (SUBJECTS WITH JIM SCALE SCORES ABOVE THE MEDIAN, BUT BELOW THE THIRD QUARTILE), AND THE HIGHEST QUARTER (SUBJECTS WITH JIM SCALE SCORES ABOVE THE THIRD QUARTILE). ALL RANKING AND PARTITIONING WAS BASED ON THE 50-ITEM JIM SCALE TOTAL SCORE DESCRIBED IN THE MANUAL.

FIVE TYPES OF STATISTICAL DATA WERE USED IN THE STUDY.

A. DESCRIPTIVE DATA WITHIN AND ACROSS QUARTERS FOR JIM SCALE SCORES, GPA, ABSENCES, STEA AND READING SCORES.

B. ITEM-CRITERION PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS FOR GPA, ABSENCES, STEA AND READING SCORES.

C. COMPARISONS OF ITEM-CRITERION CORRELATION COEFFICIENTS FOR THE 50 SCORED ITEMS AND THE 30 UNSCORED ITEMS ON THE JIM SCALE.

D. TOTAL JIM SCALE SCORE-CRITERION CORRELATION COEFFICIENTS FOR GPA, ABSENCES, STEA AND READING SCORES WITHIN AND ACROSS QUARTERS.

E. TREND ANALYSES ACROSS THE FOUR QUARTERS FOR GPA, ABSENCES, STEA AND READING SCORES.

DATA SOURCES

THE JIM SCALE WAS ADMINISTERED TO 296 ELMWOOD PARK HIGH SCHOOL FRESHMEN IN ELMWOOD PARK, ILLINOIS, DURING APRIL, 1973. FIRST SEMESTER FRESHMAN YEAR GRADE POINT AVERAGES AND ABSENCES WERE RECORDED FROM SCHOOL RECORDS IN APRIL, 1973. SRA-ITED RESULTS FROM OCTOBER, 1971, WERE RECORDED FROM STUDENT RECORDS IN APRIL, 1973. STEA SCORES ATTEMPT TO ASSESS "GENERAL EDUCATIONAL ABILITY" AND "THE STUDENT'S PRESENT ACADEMIC APTITUDE WITH A GRADE-BASED QUOTIENT SIMILAR TO I.Q. LOW STEA SCORES INDICATE THAT A STUDENT "HAS NOT DEVELOPED HIS VERBAL, NUMBER AND REASONING ABILITIES AT A RATE EQUAL TO OTHERS AT HIS GRADE LEVEL" (SRA, 1972, P. 7). BOTH TOTAL READING AND STEA SCORES WERE DERIVED FROM LEVEL FOUR OF THE ITED. ITEM CHARACTERISTICS AND CORRELATES WERE DERIVED THROUGH A QUESTIONNAIRE ANALYSIS PROGRAM DEVELOPED AT NORTHWESTERN UNIVERSITY (MCCTST); TOTAL SCORE CHARACTERISTICS AND CORRELATES WERE DERIVED FROM SPSS (STATISTICAL PACKAGE FOR THE SOCIAL SCIENCES).

RESULTS AND CONCLUSIONS

A. DESCRIPTIVE DATA

JIM SCALE AND CRITERION MEANS, STANDARD DEVIATIONS AND STANDARD ERROR TERMS WITHIN AND ACROSS QUARTERS ARE REPORTED IN TABLE I.

TABLE I DESCRIPTIVE DATA WITHIN AND ACROSS QUARTERS

		N	MEAN	SD	SE
ABSENCES	LOWEST QUARTER	75	5.78	5.03	0.58
	LOW MIDDLE QUARTER	73	5.29	6.81	0.79
	HIGH MIDDLE QUARTER	78	5.53	6.92	0.73
	HIGHEST QUARTER	70	4.35	3.88	0.46
TOTAL SAMPLE		296	5.26	5.68	0.33
GPA	LOWEST QUARTER	75	1.69	0.76	0.09
	LOW MIDDLE QUARTER	73	1.86	0.71	0.08
	HIGH MIDDLE QUARTER	78	2.10	0.79	0.09
	HIGHEST QUARTER	70	2.44	0.76	0.09
TOTAL SAMPLE		296	2.02	0.80	0.05
STEA[1]	LOWEST QUARTER	62	96.5	10.8	1.37
	LOW MIDDLE QUARTER	69	99.5	12.3	1.48
	HIGH MIDDLE QUARTER	71	103.1	12.3	1.46
	HIGHEST QUARTER	63	109.6	11.9	1.49
TOTAL SAMPLE		265	102.2	12.7	0.78
READING[1]	LOWEST QUARTER	62	356.8	45.3	5.75
	LOW MIDDLE QUARTER	69	367.0	47.2	5.68
	HIGH MIDDLE QUARTER	71	384.9	47.6	5.64
	HIGHEST QUARTER	63	406.4	44.9	5.66
TOTAL SAMPLE		265	378.8	47.6	3.05
JIM SCALE	LOWEST QUARTER	75	85.87	9.98	1.15
	LOW MIDDLE QUARTER	73	106.36	5.32	0.62
	HIGH MIDDLE QUARTER	78	122.17	5.03	0.58
	HIGHEST QUARTER	70	142.96	9.49	1.13
TOTAL SAMPLE		296	113.99	22.18	1.29

[1] NOT ALL 296 SUBJECTS WERE PRESENT AND ENROLLED WHEN ITED TESTS WERE ADMINISTERED. DATA IS SHOWN FOR THOSE SUBJECTS WHOSE STEA AND READING SCORES WERE AVAILABLE.

THESE DATA SUGGEST A PATTERN IN THE RELATIONSHIPS BETWEEN JIM SCALE TOTAL SCORES AND GPA, STEA AND TOTAL READING SCORES. STUDENTS WITH LOW JIM SCALE SCORES HAVE LOWER MEAN GPA, READING AND STEA LEVELS; STUDENTS WITH HIGHER JIM SCALE SCORES ACHIEVE HIGHER MEAN GPA, READING AND STEA LEVELS. HOWEVER, THE DATA FOR ABSENCES IS IRREGULAR. MOTIVATION TOWARD SCHOOL, AS MEASURED BY THE JIM SCALE TOTAL SCORE, DOES NOT APPEAR TO BE RELATED TO HOW OFTEN STUDENTS ARE ABSENT FROM SCHOOL DURING THE FIRST SEMESTER OF THEIR FRESHMAN YEAR OF HIGH SCHOOL. THIS ALSO WOULD SUGGEST THAT STUDENTS WHOSE MOTIVATION TOWARD SCHOOL, AS MEASURED BY THE JIM SCALE, IS LOW MAY BE IN SCHOOL AS MUCH AS THEIR MORE HIGHLY MOTIVATED CLASSMATES, BUT THAT WHAT THEY DO IN SCHOOL DIFFERS. COLEMAN'S <u>THE ADOLESCENT SOCIETY</u> AND HIS FINDING THAT ACADEMIC ACHIEVEMENT IS NOT THE MOST IMPORTANT GOAL OF MOST SECONDARY SCHOOL STUDENTS WOULD TEND TO SUPPORT THIS CONCLUSION.

B. <u>ITEM-CRITERION CORRELATIONS</u>

ITEM-CRITERION PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS FOR THE TOTAL SAMPLE ARE REPORTED IN TABLE II. INTERPRETATION OF THESE RESULTS REQUIRES A BRIEF NOTE ABOUT THE MANNER IN WHICH RAW ITEM SCORES ON THE JIM SCALE ARE CONVERTED INTO THE TOTAL JIM SCALE SCORE. STUDENTS HAVE FIVE CHOICES, OR RESPONSE ALTERNATIVES, FOR EACH ITEM. FOUR ARE DIRECTLY STATED IN A LIKERT-TYPE SCALE RANGING FROM "STRONGLY DISAGREE" (WITH AN ITEM SCORE OF MINUS TWO) TO "STRONGLY AGREE" (WITH AN ITEM SCORE OF PLUS TWO). THE FIFTH OPTION IS THAT THE STUDENT MAY LEAVE THE ITEM

BLANK, RESULTING IN NO IMPACT OF THAT ITEM ON HIS TOTAL SCORE. JUST 50 OF THE 80 ITEMS ON THE JIM SCALE ARE SCORED. THE RAW ITEM SCORES FOR THESE 50 ITEMS ARE SUMMED, THE SIGN OF THAT SUM IS REVERSED, AND THE ADJUSTED SUM IS ADDED TO 100. STUDENTS WHO DISAGREE WITH ITEMS MOST CONSISTENTLY, THEREFORE, WILL ACHIEVE A HIGH TOTAL JIM SCALE SCORE; STUDENTS WHO TEND TO AGREE WITH ITEMS WILL ACHIEVE A LOW TOTAL JIM SCALE SCORE; AND STUDENTS WHO AGREE AND DISAGREE WITH ITEMS IN APPROXIMATELY EQUAL PROPORTION WILL ACHIEVE A JIM SCALE SCORE NEAR 100. THE NORMS REPORTED IN THE MANUAL (FRYMIER, 1970A) INDICATE THAT MEAN TOTAL SCORES RANGE FROM 115 TO 130, INDICATING THAT IN THE NORMING POPULATIONS STUDENTS TENDED TO DISAGREE WITH SLIGHTLY MORE OF THE 50 SCORED ITEMS THAN THEY AGREED WITH. SCORES ALSO ARE INFLUENCED BY THE INTENSITY WITH WHICH A STUDENT DISAGREES WITH AN ITEM, SINCE "DISAGREE" IS SCORED MINUS ONE, AND "STRONGLY DISAGREE" IS SCORED MINUS TWO.

THIS SCORING SYSTEM MEANS THAT, BASED ON GROUP MEANS IN TABLE 1, STUDENTS WITH LOW GRADE POINT AVERAGES WOULD BE EXPECTED TO AGREE WITH ITEMS, AND STUDENTS WITH HIGHER GPAS WOULD BE EXPECTED TO DISAGREE WITH ITEMS, RESULTING IN AN EXPECTED NEGATIVE CORRELATION. THIS NEGATIVE CORRELATION IS SIGNIFICANT AT THE .05 LEVEL FOR 33 OF THE 80 ITEMS. TEN ITEMS REACH THE .05 LEVEL IN THE OPPOSITE DIRECTION, INDICATING THAT STUDENTS WITH HIGH GPAS TEND TO AGREE WITH THOSE ITEMS AND SUBJECTS WITH LOWER GPAS TEND TO DISAGREE. THE REMAINING 37 ITEMS DO NOT REACH THE .05 LEVEL OF SIGNIFICANCE IN EITHER DIRECTION WITH GPA.

TABLE II ITEM-CRITERION CORRELATION COEFFICIENTS[1]

ITEMS	SCORED/UNSCORED[2]	GPA[3]	ABSENCES[3]	STEA[4]	READING[4]
1.		-.060	.031	-.011	-.039
2.		-.078	.059	.067	.060
3.		.109	-.054	.056	-.015
4.		-.063	-.029	-.080	-.132*
5.	SCORED	-.020	.020	-.006	-.029
6.	SCORED	-.061	.103	.009	-.022
7.	SCORED	-.160**	.006	.024	-.054
8.		.068	-.005	.041	.095
9.	SCORED	-.135*	-.042	.050	.015
10.	SCORED	-.231**	.110*	-.040	-.130*
11.		.069	-.019	.132*	.111*
12.	SCORED	-.265**	.170**	-.086	-.233**
13.	SCORED	-.057	-.007	.095	.030
14.	SCORED	.038	.000	.030	-.024
15.		.182**	-.064	.049	.038
16.		-.169**	.064	.022	-.056
17.	SCORED	.067	.103	.019	.056
18.	SCORED	-.030	-.015	-.063	-.028
19.	SCORED	-.233**	.046	-.128*	-.153**
20.		.112*	-.101	.083	.096
21.	SCORED	-.156**	.082	.050	.102
22.		.064	-.058	.069	.101
23.	SCORED	-.054	.075	.058	.024
24.	SCORED	.021	.033	.012	.052
25.		.058	-.023	.027	-.034
26.	SCORED	-.175**	-.020	-.016	-.059
27.		.058	.076	.086	.101
28.	SCORED	-.081	.056	.056	.034
29.	SCORED	-.115*	-.004	-.048	-.087
30.	SCORED	-.224**	-.078	-.115	-.196**
31.	SCORED	-.200**	.141*	.027	-.026
32.		.213**	-.040	.056	.118*
33.	SCORED	-.178**	.001	-.067	-.128*
34.		-.056	.049	-.018	-.015
35.	SCORED	-.154**	.043	-.023	-.127*
36.	SCORED	-.175**	.019	-.056	-.140*
37.	SCORED	-.204**	.098	-.033	-.113
38.		.140*	-.064	.119*	.100
39.		-.083	.021	-.069	-.088
40.	SCORED	-.103	.044	.026	-.076

TABLE II[1] (CONTINUED)

ITEMS	SCORED/UNSCORED[2]	GPA[3]	ABSENCES[3]	STEA[4]	READING[4]
41.		-.046	.064	-.013	-.012
42.		-.012	.023	-.012	-.003
43.		-.241**	.040	-.107	-.122*
44.	SCORED	-.178**	.134*	-.044	-.061
45.		.134*	-.118*	-.034	.013
46.	SCORED	-.068	.137*	-.031	-.029
47.		-.178**	.125*	-.065	-.026
48.	SCORED	-.031	.047	.040	.023
49.		-.054	-.024	.034	.002
50.		.129*	-.023	.053	.146*
51.	SCORED	-.155**	.029	-.018	-.095
52.	SCORED	-.164**	.105	-.057	-.104
53.	SCORED	-.105	-.050	-.079	-.130*
54.	SCORED	-.087	-.010	-.009	.000
55.	SCORED	-.069	-.021	.032	-.028
56.		.088	.040	.053	.047
57.	SCORED	-.243**	.107	-.117*	-.115
58.	SCORED	-.174**	.007	-.035	-.099
59.		.003	.008	-.098	.065
60.	SCORED	-.111*	.078	.003	-.033
61.		.166**	.004	.093	.114
62.	SCORED	-.135*	.085	-.060	-.035
63.	SCORED	-.129*	.024	-.147*	-.154**
64.	SCORED	-.095	-.031	.016	-.028
65.	SCORED	-.056	.075	.047	-.027
66.		-.001	.032	-.042	-.039
67.	SCORED	-.044	-.122*	-.047	-.021
68.	SCORED	-.079	-.070	-.015	.006
69.	SCORED	-.155**	-.008	-.089	-.142*
70.	SCORED	-.147**	.042	-.074	-.124*
71.		.211**	-.056	.056	.072
72.	SCORED	-.175**	.038	-.078	-.081
73.	SCORED	-.303**	.164**	-.076	-.104
74.	SCORED	-.054	.126*	-.018	-.070
75.	SCORED	-.336**	.064	-.087	-.102
76.	SCORED	-.123*	.034	-.067	-.113
77.		.134*	.056	.082	.087
78.		.123*	-.157**	-.014	.007
79.	SCORED	-.143**	-.014	-.094	-.236**
80.	SCORED	-.247**	-.052	-.060	-.059

1. ALL CORRELATION COEFFICIENTS IN THE TABLE ARE CORRECTED FOR RESTRICTION IN RANGE DUE TO THE LIMITATION OF JUST FIVE POSSIBLE RESPONSES ON EACH JIM SCALE ITEM.

TABLE 11 (CONTINUED)

2. SCORED ITEMS ARE AS INDICATED.
3. N = 296 FOR GPA, ABSENCE CRITERION DATA. R .110 FOR P .05; R .143 FOR P .01.
4. N = 265 FOR STEA, READING CRITERION DATA. R .117 FOR P .05; R .153 FOR P .01.

FOURTEEN ITEMS REACH THE .05 LEVEL OF SIGNIFICANCE WITH READING SCORES IN THE EXPECTED DIRECTION, INDICATING THAT STUDENTS WITH HIGHER READING SCORES TEND TO DISAGREE WITH THOSE ITEMS. THREE ITEMS ARE SIGNIFICANT AT THE .05 LEVEL IN THE OPPOSITE DIRECTION. JUST EIGHT OF THE 80 ITEMS REACH THE .05 LEVEL IN THE EXPECTED (POSITIVE) DIRECTION WITH ABSENCES AS A CRITERION, INDICATING THAT STUDENTS WHO ARE SELDOM ABSENT FROM SCHOOL TEND TO DISAGREE WITH THOSE EIGHT ITEMS MORE OFTEN THAN STUDENTS WHO ARE ABSENT MORE FREQUENTLY. THREE ITEMS CORRELATE AT THE .05 LEVEL OF SIGNIFICANCE IN THE OPPOSITE DIRECTION, AND 69 ITEMS DO NOT REACH THE .05 LEVEL OF SIGNIFICANCE WITH ABSENCES IN EITHER DIRECTION. FINALLY, ITEM-CRITERION CORRELATIONS ARE LOWEST FOR STEA, WHERE JUST THREE ITEMS REACH THE .05 LEVEL IN THE EXPECTED (NEGATIVE) DIRECTION, AND TWO ITEMS REACH THE .05 LEVEL OF SIGNIFICANCE IN THE OPPOSITE DIRECTION.

THESE CORRELATION COEFFICIENTS TEND TO SUPPORT THE JIM SCALE MANUAL'S CLAIM THAT, AT LEAST WITH RESPECT TO THESE CRITERIA, "THE RESPONSE OF ANY GIVEN CHILD TO ANY GIVEN ITEM WOULD NOT BE CONSIDERED SIGNIFICANT OR MEANINGFUL. THE TEST BEING D[illegible]D WOULD BE USEFUL ONLY AS A TOTAL SCALE" (FRYMIER, 1970A, P. 58). NO PATTERN OF SIGNIFICANT ITEM-CRITERION CORRELATION COEFFICIENTS APPEARS TO EMERGE FROM THESE DATA.

C. COMPARISON OF SCORED AND UNSCORED ITEMS

AMONG THE PROCEDURAL QUESTIONS ABOUT DEVELOPMENT AND VALIDATION OF THE JIM SCALE IS THE ABSENCE IN THE MANUAL OF A CLEAR EXPLANATION OF THE SCORING PROCEDURE. REVIEWERS OF THE JIM SCALE MUST ACCEPT ON FAITH THE CLAIM THAT THE 50 SCORED ITEMS YIELD A MORE VALID SCORE THAN AN 80-ITEM SCORE MIGHT. NO EXPLANATION IS OFFERED IN THE MANUAL TO JUSTIFY THE INCLUSION OF 30 UNSCORED ITEMS, OR TO INDICATE HOW THOSE PARTICULAR ITEMS WERE DETERMINED AS USEFUL ENOUGH TO INCLUDE IN THE INSTRUMENT, BUT NOT USEFUL ENOUGH TO SCORE. POST HOC EXPLANATIONS CERTAINLY CAN BE OFFERED, BUT ANY PROSPECTIVE USER OF THE JIM SCALE CAN ONLY SPECULATE AS TO THE ANSWER TO THIS QUESTION. THE MANUAL INDICATES THAT "MORE THAN 200 ITEMS" WERE ADMINISTERED TO "OVER 6,000 JUNIOR HIGH SCHOOL STUDENTS ACROSS THE NATION" TO ISOLATE 50 ITEMS "WHICH SEEMED TO DISCRIMINATE FAIRLY CONSISTENTLY BETWEEN HIGH AND LOW MOTIVATED GIRLS AND BETWEEN HIGH AND LOW MOTIVATED GIRLS" (FRYMIER, 1970A, P. 70). THIS QUESTION IS STILL MORE IMPORTANT IN A CONTINUOUS SAMPLE OF STUDENTS WHOSE MOTIVATION TOWARD SCHOOL IS NOT ALREADY KNOWN TO DIFFER, AS IN FRYMIER'S DICHOTOMIZED SAMPLE.

A CURSORY INQUIRY INTO THIS ISSUE WAS ATTEMPTED THROUGH ANALYSIS OF THE FREQUENCY OF SIGNIFICANT ITEM-CRITERION CORRELATION COEFFICIENTS FOR SCORED AND UNSCORED ITEMS IN TABLE II. TABLE III SUMMARIZES THESE FREQUENCIES. THE 50 SCORED ITEMS DO APPEAR TO REACH THE .05 LEVEL OF SIGNIFICANCE IN THE PREDICTED DIRECTION MORE OFTEN THAN THE 30 UNSCORED ITEMS. DESPITE THE LOW OVERALL FREQUENCY OF ITEM-CRITERION CORRELATIONS SIGNIFICANT AT

THE .05 LEVEL, SCORED ITEMS ARE MORE LIKELY TO REACH THAT LEVEL OF SIGNIFICANCE THAN UNSCORED ITEMS. SCORED ITEMS ALSO ARE MORE LIKELY TO REACH THE .05 LEVEL IN THE PREDICTED DIRECTION. OF THE 18 TIMES THAT AN ITEM CORRELATES SIGNIFICANTLY IN THE DIRECTION OPPOSITE TO THAT WHICH WAS PREDICTED, ONLY ONCE DOES IT OCCUR FOR AN ITEM INCLUDED IN THE 50-ITEM TOTAL SCORE (WITH ITEM 67 WITH ABSENCES). OF THE 57 TIMES THAT AN ITEM-CRITERION CORRELATION WAS SIGNIFICANT IN THE PREDICTED DIRECTION, ONLY SIX INVOLVED UNSCORED ITEMS, AND FOUR OF THOSE OCCURED WITH JUST TWO ITEMS (43 AND 47). WITHIN THE LIMITATIONS OF THE FOUR CRITERIA SELECTED FOR THIS STUDY, THE 50-ITEM JIM SCALE TOTAL SCORE APPEARS TO HAVE MORE CRITERION-VALIDITY THAN THE 80-ITEM SCORE.

TABLE III

FREQUENCY OF SIGNIFICANT ITEM-CRITERION CORRELATIONS[1] FOR SCORED AND UNSCORED JIM SCALE ITEMS

		Scored Items	Unscored Items	Total
GPA	Negative r's (predicted)	30	3	33
	Positive r's	0	10	10
Absences				
	Positive r's (predicted)	7	1	8
	Negative r's	1	2	3
STEA	Negative r's (predicted)	3	0	3
	Positive r's	0	2	2
Reading	Negative r's (predicted)	12	2	14
	Positive r's	0	3	3

[1] All frequencies are for coefficients significant at the .05 level as reported in Table II.

D. TOTAL SCORE-CRITERION CORRELATIONS

TABLE IV SUMMARIZES PEARSON PRODUCT-MOMENT CORRELATION COEFFICIENTS BETWEEN THE 50-ITEM JIM SCALE TOTAL SCORE AND GPA, ABSENCES, STEA AND READING SCORES WITHIN AND ACROSS THE FOUR QUARTERS OF THE SUBJECTS IN THIS STUDY. CORRELATIONS WITHIN AND ACROSS QUARTERS FAIL TO REACH THE

TABLE IV

TOTAL SCORE-CRITERION CORRELATION COEFFICIENTS WITHIN AND ACROSS QUARTERS

		R	SIGNIFICANCE
ABSENCES	LOW QUARTER	-.079	.251
	LOW MIDDLE QUARTER	.073	.270
	HIGH MIDDLE QUARTER	-.059	.302
	HIGH QUARTER	-.019	.436
	TOTAL SAMPLE	-.083	.078
GPA	LOW QUARTER	.292**	.006
	LOW MIDDLE QUARTER	.218*	.032
	HIGH MIDDLE QUARTER	.079	.244
	HIGH QUARTER	.123	.155
	TOTAL SAMPLE	.375***	.00001
STEA	LOW QUARTER	.227*	.038
	LOW MIDDLE QUARTER	.238*	.024
	HIGH MIDDLE QUARTER	-.083	.245
	HIGH QUARTER	.108	.201
	TOTAL SAMPLE	.388***	.00001
READING	LOW QUARTER	.102	.216
	LOW MIDDLE QUARTER	.203*	.047
	HIGH MIDDLE QUARTER	-.015	.452
	HIGH QUARTER	.137	.142
	TOTAL SAMPLE	.378***	.00001

* SIGNIFICANT AT THE .05 LEVEL
** SIGNIFICANT AT THE .01 LEVEL
*** SIGNIFICANT AT THE .00001 LEVEL

.05 LEVEL OF SIGNIFICANCE FOR ABSENCES, BUT REACH THE .00001 LEVEL FOR THE TOTAL SAMPLE (ACROSS QUARTERS) WITH GPA, STEA AND READING SCORES. WITHIN-QUARTER CORRELATIONS ARE IRREGULAR, HOWEVER. THE LOW MIDDLE QUARTER OF SUBJECTS WHOSE JIM SCALE SCORES ARE BETWEEN THE FIRST QUARTILE AND THE MEDIAN APPEAR TO BE MOST CONSISTENT; JIM SCALE TOTAL SCORE-CRITERION CORRELATIONS ARE SIGNIFICANT AT THE .05 LEVEL FOR GPA, STEA AND READING WITHIN THIS QUARTER. SIMILARLY, THE LOWEST QUARTER OF SUBJECTS WHOSE SCORES ARE BELOW THE FIRST QUARTILE ARE CONSISTENTLY DISCRIMINATED IN TERMS OF JIM SCALE-CRITERION CORRELATIONS WITH GPA AND STEA. HOWEVER, NONE OF THE WITHIN-QUARTER CORRELATIONS FOR THE TWO QUARTERS ABOVE THE MEDIAN ARE SIGNIFICANT. THESE RESULTS INDICATE THAT ALTHOUGH THE JIM SCALE MAY BE ABLE TO DISCRIMINATE AMONG RELATIVELY LARGER GROUPS OF SUBJECTS AND WITHIN SMALLER GROUPS WHOSE SCORES ARE BELOW THE MEDIAN WITH RESPECT TO READING ABILITY, ACADEMIC APTITUDE (STEA) AND GRADE POINT AVERAGES, IT DOES NOT DISCRIMINATE AMONG THOSE HIGH SCHOOL FRESHMEN ARE ABOVE THE MEDIAN. THIS RESULT MAY BE A REFLECTION OF A CAUTION INCLUDED IN THE MANUAL THAT THE INSTRUMENT "IS NOT ADEQUATE ... TO BE USED IN MAKING DECISIONS WHICH PERTAIN TO INDIVIDUAL STUDENTS, BUT ... DOES HAVE UTILITY FOR STUDYING ACADEMIC MOTIVATION AMONG GROUPS OF STUDENTS UNDER VARIOUS EXPERIMENTAL CONDITIONS" (FRYMIER, 1970A, P. 79).

E. LINEAR TRENDS

ANALYSIS OF VARIANCE TO TEST THE LINEARITY AND DEVIATIONS FROM LINEARITY IN THE TOTAL SAMPLE OF SUBJECTS ADDED FURTHER STATISTICAL SUPPORT FOR THE CONCLUSIONS SUGGESTED BY EARLIER SECTIONS OF THIS REPORT. THESE RESULTS ARE SUMMARIZED IN TABLE V. THEY INDICATE A SIGNIFICANT LINEAR TREND (ALL THREE F RATIOS EXCEED 35) ACROSS GROUPS FOR GPA, STEA AND READING SCORES, BUT NO SIGNIFICANT LINEAR TREND FOR ABSENCES ($F = 1.84$, $P > .15$). NO SIGNIFICANT DEVIATIONS FROM LINEARITY WERE OBSERVED (ALL $F < 1$).

EDUCATIONAL IMPORTANCE OF THE STUDY

THE IMPLICATIONS FOR THE FUTURE USE OF THE JIM SCALE FOCUS ON THE TWO ISSUES SELECTED FOR STUDY IN THE PRESENT PAPER: THE SOUNDNESS OF THE THEORY IMPLICITLY BUILT INTO THE JIM SCALE'S ATTEMPT TO DEVELOP A SINGLE-SCORE GLOBAL MEASURE OF "MOTIVATION TOWARD SCHOOL", AND THE UTILITY OF THE INSTRUMENT IN WORK WITH ADOLESCENTS, INDIVIDUALLY AND IN SMALL GROUPS. THE DATA DOES NOT SEEM SUFFICIENT TO JUSTIFY EXISTING CLAIMS OF VALIDITY. PRELIMINARY TESTS OF AN INSTRUMENT WITH DICHOTOMIZED SAMPLES OF SUBJECTS "PREVIOUSLY KNOWN TO DIFFER" WITH RESPECT TO A TRAIT ARE IMPORTANT, BUT THEY ARE NOT SUFFICIENT EVIDENCE TO PUBLISH AN INSTRUMENT. EDUCATIONAL RESEARCH OFTEN USES SMALL EXPERIMENTAL GROUPS; USE OF AN INSTRUMENT WHOSE VALIDITY FOR INDIVIDUALS WITHIN SUCH SMALL GROUPS IS UNCERTAIN MAY YIELD VERY UNSTABLE RESULTS. THE FACT THAT NO MANUAL HAS YET BEEN PUBLISHED FOR THE JIM SCALE IS A SIGN OF PREMATURE

TABLE V

TREND ANALYSES

ABSENCES

SOURCE	D.F.	SUMS OF SQUARES	MEAN SQUARES	F RATIOS
BETWEEN GROUPS	3	82.9285	27.6428	.856
LINEAR TERM	1	59.2569	59.2569	1.843
DEV. FR. LIN.	2	23.6716	11.8358	.367
WITHIN GROUPS	292	9428.5580	32.2896	
TOTAL	295	9511.4865		

GPA

SOURCE	D.F.	SUMS OF SQUARES	MEAN SQUARES	F RATIOS
BETWEEN GROUPS	3	22.2605	7.4202	12.926*
LINEAR TERM	1	21.8614	21.8614	38.253*
DEV. FR. LIN.	2	.3991	.1995	.348
WITHIN GROUPS	292	167.6186	.5740	
TOTAL	295	189.8791		

STEA

SOURCE	D.F.	SUMS OF SQUARES	MEAN SQUARES	F RATIOS
BETWEEN GROUPS	3	6061.5670	2020.5223	14.381*
LINEAR TERM	1	5846.9635	5846.9635	41.690*
DEV. FR. LIN.	2	214.6035	107.3017	.764
WITHIN GROUPS	261	36670.4481	140.4998	
TOTAL	264	42732.0151		

READING

SOURCE	D.F.	SUMS OF SQUARES	MEAN SQUARES	F RATIOS
BETWEEN GROUPS	3	90251.6087	30083.8696	14.019*
LINEAR TERM	1	87765.6162	87765.6162	41.031*
DEV. FR. LIN.	2	2485.9925	1242.9963	.579
WITHIN GROUPS	261	560078.8064	2145.8958	
TOTAL	264	650330.4151		

* $P < .001$

PUBLICATION OFTEN CITED IN REVIEWS IN THE MENTAL MEASUREMENT YEARBOOKS. NO REPORTS HAVE YET BEEN PUBLISHED ATTEMPTING TO ADDRESS THE GUIDELINES AND STANDARDS RECOMMENDED IN THE APA/AERA/NCME HANDBOOK FOR SUCH INSTRUMENTS. LACKING THIS EVIDENCE, THE UTILITY OF THE JIM SCALE WOULD APPEAR TO BE LIMITED AT THE PRESENT TIME TO ATTEMPTS TO DISCRIMINATE BETWEEN GROUPS OF STUDENTS ALREADY KNOWN TO DIFFER WITH RESPECT TO MOTIVATION TOWARD SCHOOL.

A MORE DIFFICULT PROBLEM WITH THE JIM SCALE IS CONCEPTUAL. GLOBAL MEASURES ARE WEAK PRIMARILY BECAUSE THEY ATTEMPT TO REDUCE WHAT MAY BE COMPLEX, CONFOUNDING FACTORS INTO A SINGLE SCORE. PERHAPS A STRONGER APPROACH TO MEASURES OF MOTIVATION AND ATTITUDES TOWARD SCHOOL MIGHT BE MULTI-SCALE, MULTI-FACTOR INSTRUMENTS THAT WOULD THEN ALLOW VALIDATION OF PARTICULAR DIMENSIONS OF THE CONSTRUCT. AS THEORETICAL CONSTRUCTS ARE BETTER DEFINED, INSTRUMENTS ATTEMPTING TO MEASURE MOTIVATION CAN BE IMPROVED. BUT INSTRUMENTS THAT ATTEMPT TO POOL ALL POTENTIAL SOURCES OF ERROR IN SO VAGUE A CONSTRUCT AS "MOTIVATION TOWARD SCHOOL" DEMAND THAT THEIR GLOBAL MEASURES BE THE SOLE CRITERION UPON WHICH THE CONSTRUCT IS JUDGED. THE PRESENCE OF COMPUTERS AND THE FACT THAT MULTI-SCALED INSTRUMENTS ARE NOT DIFFICULT TO ANALYZE AND DEVELOP SHOULD ELIMINATE THE NEED FOR OVERSIMPLIFIED, VAGUELY DEFINED GLOBAL MEASURES. PERHAPS SUCH GLOBAL MEASURES CAN BE DEVELOPED, BUT NOT WITHOUT MORE CAREFUL DEFINITION AND DELINEATION OF THE CONSTRUCT OF MOTIVATION AND ITS IMPLICATIONS FOR THE BEHAVIOR OF ADOLESCENTS IN SCHOOLS.

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